

## Mechanical and Design



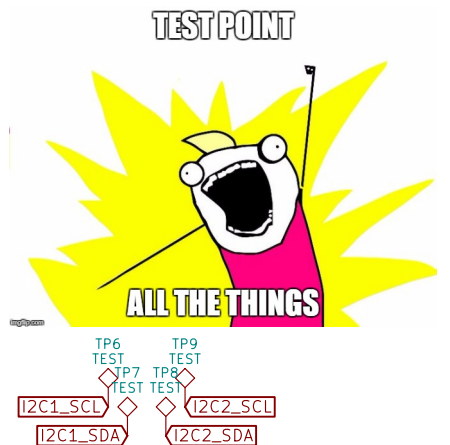
Diagram illustrating the connection of an ESP32-WROVER module to an LCD module. The ESP32 pins are connected to the LCD module pins as follows:

- ESP32 Pin 1 (GND) to LCD Pin 38 (GND)
- ESP32 Pin 2 (VDD) to LCD Pin 37 (VDD)
- ESP32 Pin 3 (EN) to LCD Pin 36 (LCD\_MOSI)
- ESP32 Pin 4 (SENSOR\_VP) to LCD Pin 35 (LCD\_DC)
- ESP32 Pin 5 (SENSOR\_VN) to LCD Pin 34 (RXD)
- ESP32 Pin 6 (GP\_IN1) to LCD Pin 33 (TXD)
- ESP32 Pin 7 (ACCEL\_INT) to LCD Pin 32 (EYE\_LED)
- ESP32 Pin 8 (I2C1\_SCL) to LCD Pin 31 (LCD\_RESET)
- ESP32 Pin 9 (I2C1\_SDA) to LCD Pin 30 (LCD\_SCL)
- ESP32 Pin 10 (I2C2\_SCL) to LCD Pin 29 (LCD\_CS)
- ESP32 Pin 11 (I2C2\_SDA) to LCD Pin 28 (NC)
- ESP32 Pin 12 (SD\_CLK) to LCD Pin 27 (NC)
- ESP32 Pin 13 (SD\_D2) to LCD Pin 26 (SD\_D1)
- ESP32 Pin 14 (SD\_D3) to LCD Pin 25 (SD\_D0)
- ESP32 Pin 15 (GND) to LCD Pin 24 (SD\_CMD)
- ESP32 Pin 16 (SD2) to LCD Pin 23 (SD\_CLK)
- ESP32 Pin 17 (SD3) to LCD Pin 22 (SD0)
- ESP32 Pin 18 (CMD) to LCD Pin 21 (SD1)
- ESP32 Pin 19 (P\_GND) to LCD Pin 20 (CLK)

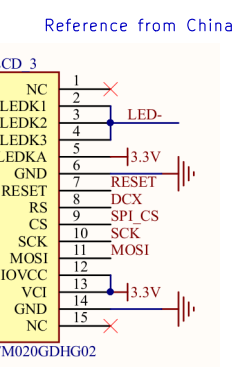
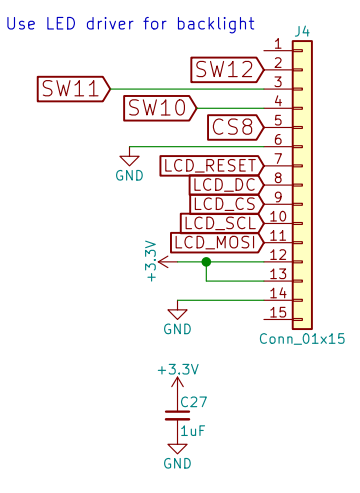
Additional components and connections shown:

- ESP32 Pin 3 (EN) is connected to a 3.3V supply through a 10k resistor (R6).
- ESP32 Pin 4 (SENSOR\_VP) is connected to a 3.3V supply through a 10uF capacitor (C8).
- ESP32 Pin 5 (SENSOR\_VN) is connected to GND.
- ESP32 Pin 6 (GP\_IN1) is connected to a 3.3V supply through a 10k resistor (R7).
- ESP32 Pin 7 (ACCEL\_INT) is connected to a 3.3V supply through a 10k resistor (R8).
- ESP32 Pin 8 (I2C1\_SCL) is connected to a 3.3V supply through a 10k resistor (R9).
- ESP32 Pin 9 (I2C1\_SDA) is connected to a 3.3V supply through a 10k resistor (R10).
- ESP32 Pin 10 (I2C2\_SCL) is connected to a 3.3V supply through a 10k resistor (R11).
- ESP32 Pin 11 (I2C2\_SDA) is connected to a 3.3V supply through a 10k resistor (R12).
- ESP32 Pin 12 (SD\_CLK) is connected to a 3.3V supply through a 10k resistor (R13).
- ESP32 Pin 13 (SD\_D2) is connected to a 3.3V supply through a 10k resistor (R14).
- ESP32 Pin 14 (SD\_D3) is connected to a 3.3V supply through a 10k resistor (R15).
- ESP32 Pin 15 (GND) is connected to a 3.3V supply through a 10k resistor (R16).
- ESP32 Pin 16 (SD2) is connected to a 3.3V supply through a 10k resistor (R17).
- ESP32 Pin 17 (SD3) is connected to a 3.3V supply through a 10k resistor (R18).
- ESP32 Pin 18 (CMD) is connected to a 3.3V supply through a 10k resistor (R19).
- ESP32 Pin 19 (P\_GND) is connected to a 3.3V supply through a 10k resistor (R20).

## SHITTY ADD-ON



## LCD!

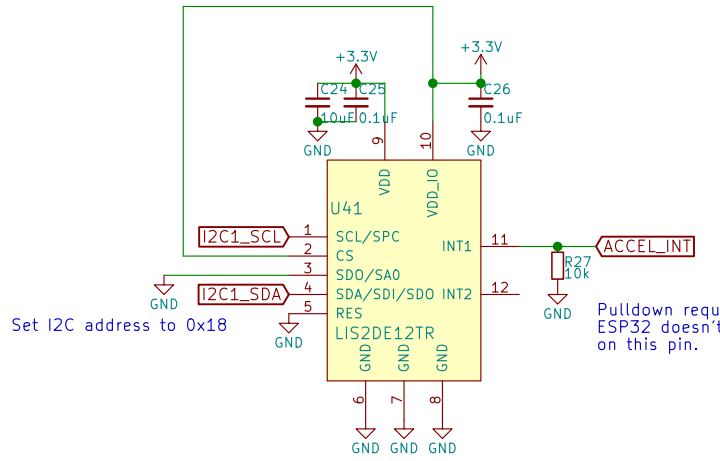
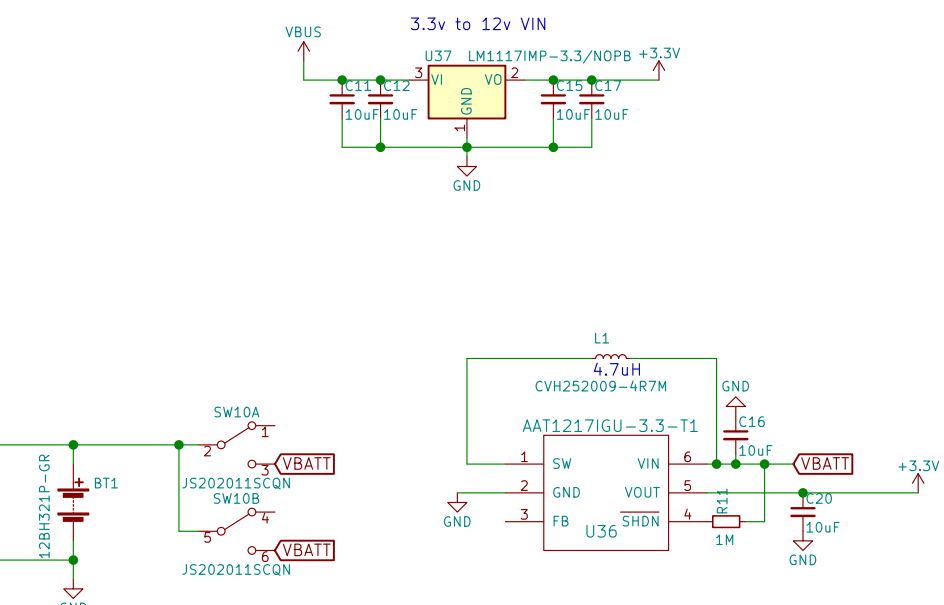


Optional pull-ups. Internal pull-ups seem to work okay. No need to have these set aside.

The diagram illustrates the optional pull-up circuit for the SD card. It shows a +3.3V supply connected to a network of resistors (R68-R76) that pull up the data lines (D0-D7), command lines (CMD, CLK), and the card detect line (DETECT). The SD card is connected to the microcontroller's pins (SD\_D0-SD\_D7, SD\_CMD, SD\_CLK, SD\_CD, CARD\_DETECT, CARD\_DETECT). The microcontroller's pins are labeled with their respective functions: SD\_D0, SD\_D1, SD\_D2, SD\_D3, SD\_D4, SD\_D5, SD\_D6, SD\_D7, SD\_CMD, SD\_CLK, SD\_CD, CARD\_DETECT, and CARD\_DETECT. The SD card is labeled 'MF-MICROSD' and 'SHIELD'.

[illegible]

1 to 3V input for boost regulator testing



## ACCELEROMETER